Effects of an Iron Gate Dam Pulse Flow on the Water Quality of the Klamath River

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Abstract

Past concerns on the Klamath River were that flow increases may initiate poor water quality conditions due to suspension of organic materials accumulated in the river channel. An increase in flow for Yurok Tribe ceremonial purposes occurred in August 2004 and presented the opportunity to study spatial and temporal effects on turbidity, nutrients, bacteria and general water quality parameters downstream of Iron Gate Reservoir. Taking into account travel time of the pulse flow, a study plan was developed to evaluate the source water out of Iron Gate Dam and the downstream reaches before, during and after the event.

Results indicate that turbidity increased at all study sites along with increases in total phosphorous, BOD, TSS, total and fecal coliforms and pheophytin. At the onset of the pulse flow, DO and pH decreased just below Iron Gate Dam but little to no effect was identified at downstream sites. Effects on DO and pH from increased turbidity and nutrients may have been masked by a cooling trend and cloud cover at the time.

Final results will be available in the next few months. These will be posted on the Arcata Fish and Wildlife Service's website: http://arcata.fws.gov/fisheries

Future studies should evaluate substantial flow increases and the associated effects on downstream water quality. Parameters should include turbidity, select nutrients, coliform bacteria and the DO/pH relationships with respect to primary production. Future studies should also involve additional coordination with partners and increased sample frequency to better capture temporal trends.